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Remarks

Claims 1-9, and 12-19 remain in the application.

The Examiner has rejected claims 15-19 under 35 U.S.C. §112, ¶2 for indefiniteness because they depend from a canceled claim. The above amendments correct the dependencies as suggested by the Examiner.

The Examiner has rejected claims 1, 3, 6-8, 20, 22, 23, 25, 26, 28, and 29 under 35 U.S.C. §102(b) as being anticipated by Samoilov et al. (US Patent 6,455,814, hereafter Samoilov). Claims 20, 22, 23, 25, 26, 28, and 29 have been canceled. The rejection of the remaining claims is traversed.

The Examiner admits that Somoilov does not disclose an apparatus having a front side of the substrate facing downwardly, but contends that it has been held that reversal of mechanical structure involves only routine skill. The case law for this assertion is not cited. That is, the Examiner admits that Somoilov does not anticipate the claim, but the Examiner contends that changes are obvious. The anticipatory rejection presented by the Examiner requires that each and every feature of the claims be found in the anticipatory reference. The Examiner admits the reversal of orientation is not found in Samoilov. Accordingly, the anticipatory rejection must be removed.

Further, addressing a possible obviousness rejection, the change of an upwardly facing wafer to a downwardly facing one does not involve routine skill. Face down processing is very unusual for integrated circuits. Samoilov certainly does not disclose such. The Examiner's assertion that reversing essential working parts of a device is routine is possibly correct in some circumstance, but it is not applicable to Samoilov. Such an inversion is not routine because the resultant processing chamber is inoperable and thus lacks utility and certainly lacks a suggestion for any advantage of being operated in the inverted orientation. Samoilov's wafer 116 is gravitationally supported on either his susceptor 106 or lift pins 105 (col. 3, lines 21-27). If Samoilov's chamber were inverted, his wafer 116 would fall from his susceptor 106 or lift pins

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105 onto the dome roof 128 with its front face containing delicate circuitry crashing into the roof. No ordinary mechanic would invert Samoilov's chamber since to do so not only lacks any advantage but causes severe disadvantage. The case law is clear that inverting structure to an inoperable orientation for its original use is not obvious.

Yet further, claim 3 requires that the supporting the wafer within the edge exclusion zone. Samoilov does not discuss an edge exclusion zone so that the anticipatory rejection must be withdrawn. Further, since Samoilov is supporting his wafer on its backside, he has no reason to restrict support to the edge exclusion zone. Indeed, his figure shows the pin support far away from the wafer edges so that he has no concern about the area being supported either before or during processing.

The Examiner has rejected claims 2, 4, 5, 9, and 12-19 under 35 U.S.C §103(a) as being obvious over Samoilov in view of Ballance et al. (US Patent 6,090,210, hereafter Ballance). This rejection is traversed.

Claims 2, 4, 5, and 9 depend from claims believed to be in allowable form and should therefore also be allowable.

Claims 4, 13, 14, 17, and 18 recite a limitation related to the edge exclusion zone, a term that is not even described in the applied art so that they cannot be obvious over the applied art. The Examiner contends that 3mm edge exclusion zones are well known, which of course they are. The Examiner fails to address the lack of prior art of supporting a wafer's front side only within the edge exclusion zone, a feature not available in the applied art. The Examiner's attempt to reverse engineer the invention amounts to unpermitted hindsight.

Claims 9 and 19 require that the thermal monitors are directed to the substrate front side. Samoilov does not described thermal monitors. Ballance's thermal monitors are directed to the wafer back side. Accordingly, these claims cannot be obvious over the applied art.

Claim 12 requires that the substrate back side face the radiant source and that the radiant heat source is above the reflector. Neither Samoilov nor Ballance show both conditions and there is no suggestion to modify either of them in substantial and undisclosed ways to conform to the other. On some level, the lack of teaching in the prior art for supporting the wafer on its front

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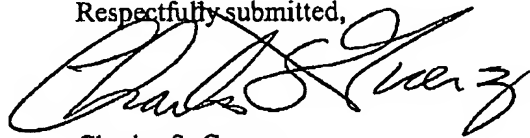
side precludes combining the references in the way suggested by the Examiner. The applied art supports the wafer on its back side. There is no teaching on how to support a wafer with its back side facing an overhead radiant source. Accordingly, claim 12 and its dependent claims should be held allowable.

Entry of the amendments is respectfully requested under 37 CFR 1.116 as canceling claims, putting the claims in better form for appeal, and conforming to a suggestion of the Examiner.

In view of the above amendments and remarks, reconsideration and allowance of all claims are respectfully requested. If the Examiner believes that a telephone interview would be helpful, he is invited to contact the undersigned attorney at the listed telephone number, which is on California time.

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Respectfully submitted,



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